



MPSCS Newsletter

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Join the MPSCS conversation on Twitter @ www.twitter.com/mpscs and check out our videos @ www.youtube.com/thempscs

TECH TIP:

If you are a local or state agency you can purchase original Motorola accessories and parts at the State of MI discount. Go to <https://businessonlinemotorola.com>, and create your own account to get started.

- Del Rajala,
Laurium Radio shop

MPSCS Computer Aided Dispatch

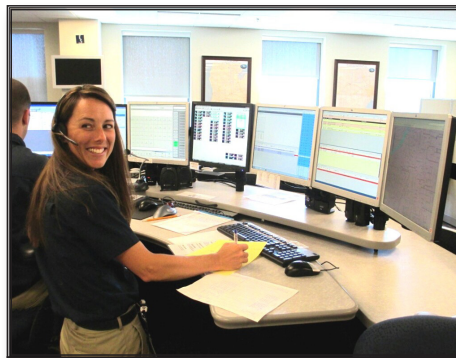
After two years of preparation, MPSCS has moved into production with Motorola PremierOne CAD. Our new enterprise Computer Aided Dispatch (CAD) system is a powerful incident management solution. The system has been designed and setup within the State of Michigan network with flexibility in mind because our PremierOne system is intended for multi-agency use. Multiple different agencies can easily be co-located on the same platform to create a unified system, yet still preserve intra-agency privacy and control. Our goal was to construct an enterprise CAD system that could be leveraged by both State and local public safety users.

The Michigan Department of Natural Resources (DNR) along with MPSCS will soon begin using the system. However, the Michigan Department of State Police (MSP) has already gone live on the system. First the MSP Operations Regional Communications Center (RCC) in Lansing went live on August 7th, followed by the Detroit RCC on September 18th, the Negaunee RCC on October 2nd and the Gaylord RCC is scheduled to go live October 30th.

A recent follow up visit to the MSP Operations (RCC) revealed that dispatchers are still getting used to the new software but the transition to CAD went very smoothly. Dispatch Director Rob Kelly

said he had never worked with CAD before but "it has been great so far." He noted that "it is much better from an officer safety perspective because it reminds us what cars are on activity and to check their welfare more often."

Dispatcher Amy Darling agrees saying "It is a lot easier to track units visually." Dispatcher supervisor, Todd Self said "with PremierOne CAD we are better able to maintain our accuracy while entering data and we have even more assurance we are doing our job effectively."



Kristin Krieger works with Computer Aided Dispatch on Aug 7th as they Go Live in Lansing

The dispatchers also noted that PremierOne CAD being a statewide system is one of the best features. With all of the Regional Communications Centers connected to the same system, they can easily share information, monitor events, or transfer incidents between centers. This will be critical when large-scale emergencies occur that require monitoring or additional assistance.

There are still many improvements to look forward to in the near future. MPSCS is currently working with Motorola to finalize a new version of our Premiere Mobile Data Client (PMDC) with CAD integration. This will allow first responders using PMDC in the field to be dispatched on calls with more information than ever before. This will result in faster, safer responses to calls especially in high-priority, potentially dangerous incidents.



Words From Our Director: Brad Stoddard

Funding for Sustainability Long Term

Some say Land Mobile Radio (LMR) has entered in the land of broadband. Some may say it's actually broadband in LMR territory. Either way you look at it, both will be collaborative of one another. There are so many discussions and related plans for the future of public safety communications, but what has been the staple and backbone for public safety communications for decades has been LMR. Not to discount or sidestep the future plans for public safety communications utilizing the Long Term Evolution (LTE) standards, but we cannot lose focus on what public safety is using today to communicate.

Multiple investments have been made across the nation for Project 25 (P25) standards based systems and non-P25 systems of analog and digital solutions in an array of spectrum bands. These investments represent city systems, county systems, regional systems, and statewide systems and in all cases provide a sense of security, and a wireless tether for support. The array of spectrum bands grew out of necessity over the decades to provide greater coverage to more public safety users in all areas of the country.

Those LMR investments that provide the basic mission critical communications for public safety around the nation should not be ignored with the hopes of broadband coming soon and solving the financial support needs of your LMR systems. Carriers have

made it clear that you need to continue to maintain and financially support your LMR systems, as mission critical voice is not a solution in LTE today nor is it within the existing specifications of LTE in the near future.

Given that LMR will continue to be the backbone of mission critical voice



for years to come, the focus should be placed to effectively fund the support and upgrades of these systems. These systems have been funded through a multitude of ways for construction from bonds and millages to surcharges, general funds, and grants. Now is the best time to look long term and develop funding models for LMR that will be

sustainable to address the same needs for LTE as it becomes available. There have been studies for years for road and bridge funding for maintenance and also for upgrade and replacement. So now, what can public safety learn from transportation to ensure that

funding uses sustainable models ensuring we are not risking public safety communications by just filling the potholes over and over again?

“Now is the best time to look long term and develop funding models for Land Mobile Radio ..”

**Dan Robinson
of the MPSCS
Radio
Programming
Unit providing
maintenance
on a Land
Mobile Radio**



“..you need to continue to maintain and financially support your Land Mobile Radio systems..”



Local Integrations and Project Updates

Lapeer Co. - 6 Site Simulcast in progress, will go live in December.

City of Flint - joining MPSCS with consolettes. Long term goal is to upgrade existing consoles and connect to the MPSCS.

Genesee Co. - upgrading consoles to MCC7500 IP consoles and added two channels to increase the Grade of Service.

Oakland Co. - installed a MCC7500 console for interoperability, went live in July.

Conference of Eastern Wayne (CEW) - Add a 6 channel site and moved to MPSCS in October.

Wayne Co. - replacing fiber link to the master site with a microwave in December.

Marquette/MSP - will be installing MCC7500's.



800 MHz Rebanding Update

Radio Rebanding started on August 22 with the initial effort directed at radios in Ingham and Eaton Counties (Lansing area). The two companies (Wireless Advanced Communications and Digiticom Electronics) were contracted to reband all Motorola radios statewide leading up to the Labor Day holiday.

Following the holiday, agencies in Livingston County, with over 1,200 radios, were rebanded. The counties in the thumb were next on the schedule including Huron, Tuscola, Sanilac, Lapeer and St. Clair. Upon the completion these counties, over 7,600 radios had been reprogrammed.

However, upon reaching Genesee County, the project team realized that the rebanding field teams were completing counties faster than the next agencies could be scheduled. As a result it became apparent that a moratorium on rebanding was required. The project was suspended on Sept 25. The Project Team is currently restructuring the entire statewide schedule. We are hopeful that the field rebanding operation will resume on Nov 27, following the Thanksgiving holiday.



The two month interim period will be used by the project's contractors (RCC and Motorola) to review and revise the existing plan and processes based upon the project's experiences to date. MPSCS will monitor the planning to ensure that the needs of the MPSCS subscribers are considered and incorporated into the revision.

Counties and subscribers that have been scheduled, but were suspended by the moratorium, will be contacted again by the RCC scheduling staff, beginning in October. The scheduling team will be providing new rebanding dates to site locations.



Engineering Corner: 700 MHz *by Mark Sandberg*

At recent User Group meetings I've had the opportunity to discuss the challenges MPSCS faces involving 800 MHz frequency congestion. Over the last ten years MPSCS has been continually adding new 800 MHz channels throughout the system to keep up with the significant increase in users. Depending on where the additional system capacity is required, finding an available frequency is not always an easy task.

In recent years, we have been forced to "shuffle" frequencies from site to site to add new 800 MHz channels at required locations. Although these shuffles can often be comparable to a complicated jigsaw puzzle, we have managed to solve the problem and add the required non-interfering 800 MHz channels. That is, until this year.

During the early stages of a project to add a six site simulcast system in Lapeer County, we came to the conclusion that due to the current 800 MHz environment, it was not possible to obtain the required number of 800 MHz frequencies for the new system. Even our efforts to solve the issue with frequency shuffles of unprecedented complication were coming up short. If we had been confronted with this problem two years ago, we would have been stuck. But thanks to the recent 7.11 MPSCS upgrade a door to the world of 700 MHz had been opened.

On June 12, 2009, television stations nationwide completed their transition to an all-digital format, making way for six megahertz of new narrowband

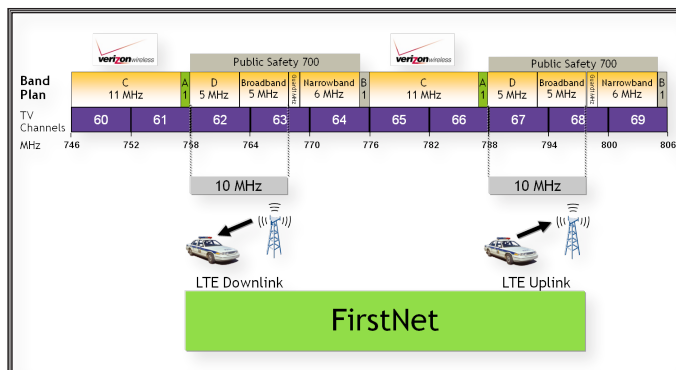
voice spectrum in the 700 MHz range reserved for public safety use. In anticipation of the new spectrum, many P25 radio manufacturers had been making radios capable of operating in both the 700 and 800 MHz bands for some time, which

meant the hardware in many MPSCS subscribers already on the system were capable of taking advantage of the new spectrum. Unfortunately, the system's capabilities at the time were not at the same level as the hardware's capabilities.

In the spring of 2012, the 7.11 MPSCS upgrade provided system features that allowed it to dynamically distinguish between radios that are capable of both 700 and 800 MHz and radios only capable of 800 MHz. But even though the features were available, significant system configuration changes still needed to take place.

This summer MPSCS engineering, after thorough research and careful testing in the lab, developed a rollout plan for system configuration changes to allow for seamless use of 700 MHz voice channels on the MPSCS. Teaming up with the Network Communications Center (NCC), we were able to complete implementation of those changes the week of September 17th.

Now, site 2102 in Lakeville is on track to be the first MPSCS site to contain 2 - 700 MHz voice channels. This channel will not only provide the necessary capacity to accommodate the welcomed addition of Lapeer County, but also clears the path for the future growth and service of MPSCS users.





Understanding Microwave Fade

by Steve Leaming and David Hayhurst, NCC

The MPSCS towers are interconnected by a robust network of microwave radios. Microwave radio connectivity was selected over traditional leased copper or fiber Telco lines due to the reliability and cost effectiveness of connecting over 240 MPSCS towers. These microwave radios provide the connectivity for voice and data radio communications to over 62,000 radios used by Michigan's First Responder radios.

Unlike a traditional 2-way radio, the MPSCS microwave radios use a secure, extremely focused, 6 GHz (6,000 MHz) radio signal between towers. This requires parabolic shaped antennas also known as "dishes" securely mounted to the tower. The tower must also be very stable and not allow for twisting or swaying in high winds. If you have observed an MPSCS site, you will note there are one or more "dishes" mounted to the legs of the tower.

Designing a microwave radio path requires a careful analysis of the distance, terrain, climatic conditions, possible interference from buildings, bodies of water, etc. After careful analysis of a proposed path, the correct size of dishes (3' to 12') are selected and mounted to the tower at specific engineered heights. In addition to the path analysis and designed antennas, the microwave radio equipment has fully redundant receivers and transmitters, redundant power, backup batteries and extensive diagnostic functionality available to our NCC.

Even though our microwave paths have been engineered to meet either 99.999% ("five-nines") or 99.9999% ("six-nines") of reliability, we sometimes experience a "microwave fade" event during the summer and fall

months. As the earth heats and cools each day, the moisture in the air will result in the microwave radio signal bending and possibly "skipping" across the top of the distant tower. This is commonly referred to as "ducting" or "an inversion". Many will remember the days a distant Police or Fire dispatch call was heard on their older analog radios due to ducting or inversions on VHF or UHF frequencies.

The MPSCS microwave radios are engineered to compensate for the naturally occurring bending of the radio signal by installing two receive dishes on a tower. The microwave radio then automatically selects the best signal from either dish and passes that to the 800 MHz system. Using diagnostic equipment in the NCC, they can observe the radios performance when fading occurs.

When a microwave fading event occurs, the connectivity between the towers fails and each 800 MHz MPSCS tower reverts to a "Site Trunking" condition until the microwave path becomes stable again. This can be for as short as a few seconds or several seconds in duration. When the path stabilizes, the 800 MHz MPSCS towers automatically revert to wide area trunking.

Our NCC is staffed 24x7 and always available to answer your questions regarding the MPSCS and more detailed questions on the microwave radio system.



Network Communications Center

1-888-554-4622



New Employees at MPSCS



Greg Farrer

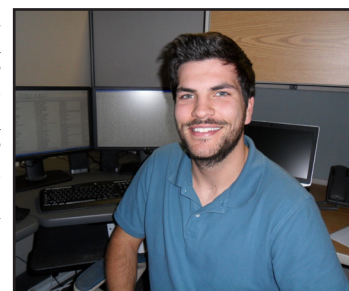
Greg Farrer is our new engineer here at the MPSCS and has filled the position for just over a month now. Greg graduated from Western Michigan University in

Kalamazoo with a degree in aeronautical engineering. While in college he fulfilled one of his personal interests by obtaining his amateur radio license.

Since college, Greg had applied to the Navy as a pilot; he was accepted into the program but did not enter due to a change in his circumstances. While in the midst of a new career path Greg discovered the opening for the engineer position at the MPSCS and thought it would be a good fit for him because of his prior interest in radios. He also liked the fact that he would be able to stay in Michigan.

Greg is just getting to know the ins and outs of the MPSCS radio system and has already been able to visit the Rockford site. He said that he "enjoyed getting to see how everything worked and seeing one of the sites moving along."

Michael Price is now part of the MPSCS engineering unit as a student intern and has been with us for almost two months. Michael has earned Associate's degrees at Lansing Community College in Engineering and Foreign Language and is currently attending Michigan State University working toward his Bachelor's degree in Electrical Engineering.



Before his time here Michael had the opportunity to intern at Stennis Space Center in Mississippi with a Software Development Team. He also has experience working with the State of Michigan in a lab for the Department of Environmental Quality.

Michael was married this past summer in Antigua and spent two weeks on the island with his new wife. His life is currently filled with school and work but he enjoys spending time with his new family which includes his dog. Michael says that he has met many friendly people so far and has already learned a lot in his short time at the MPSCS.

Matthew Blackburn

Matthew Blackburn is our new Steeplejack at MPSCS. He was born in Owosso, MI and raised in Byron but traveled to Marquette in the U.P. to attend school at Northern Michigan University. There he received his Associate's degree in Automotive Engineering.

He worked in the U.P. as a small engine mechanic and as a mechanic for a corrugated paper company. He then



worked in Byron as a Steeplejack with Emergency Radio Service (ERS) for 3 years. He is enjoying his new job as a steeplejack here at the State of Michigan.

Matthew enjoys Michigan winters and snowmobiling. He and his wife Janette were married this past August. Congratulations Matthew and welcome to MPSCS.



MICHIGAN'S PUBLIC SAFETY COMMUNICATIONS SYSTEM

Chief Bill Nelson of Troy - Fire Chief of the Year

Fire Chief Bill Nelson from Troy was named Fire Chief of the year for 2012 by the Michigan's Fire Chief Association. Earlier in the month of September Chief Nelson was chosen for this honor for his ongoing work to improve local, regional, and statewide fire safety infrastructure and communications systems.

Chief Nelson has had a hand in developing an open sky radio system as well as an emergency radio

communications team for Oakland County.

The MPSCS congratulates Chief Bill Nelson on his recent recognition and applauds him for his continuous strides for public safety that reach far beyond his own region.

**MPSCS USER GROUP MEETINGS**

NEXT: Macomb Co., Thursday, December 13, 2012, 1:00- 3:00 pm
in conjunction with the Macomb Co. Public Safety Communications System 800 MHz
Radio User Committee Meeting, Macomb Intermediate School District,
44001 Garfield Rd., Rm. 100C, Clinton Twp., MI
RSVP: Kim Miller 517-336-2041 - millerk44@michigan.gov

Check back to our website for User Group Meeting dates in 2013

Want additional MPSCS information?

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Questions for Engineering Corner:
Mark Sandberg, (517) 336-2634

Check out our website
and let us know what you
would like to see.
www.michigan.gov/mpscs

2012 Radios On System